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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/823,529	04/13/2004	Bo Jin	CD03021	4879
28960 7590 06/01/2007 HAVERSTOCK & OWENS LLP 162 NORTH WOLFE ROAD SUNNYVALE, CA 94086			EXAMINER LAM, DAVID	
			ART UNIT 2827	PAPER NUMBER
			MAIL DATE 06/01/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

**Office Action Summary**

Application No.

10/823,529

Applicant(s)

JIN ET AL.

Examiner

David Lam

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-3,5-7 and 21-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,5 and 21-23 is/are rejected.
- 7) ☒ Claim(s) 6-7 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

## **DETAILED ACTION**

### ***Request For Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 5/7/07 has been entered.

- Claims 4 and 8-20 have been cancelled.
- Claims 1-3, 5-7 and 21-23 are pending in the application.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 5 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 5 recites the limitation "the dielectric layer" in lines 3-4. There is insufficient antecedent basis for this limitation in the claim.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1-3, 5, 21-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hashimoto et al. (5,780,910) in view of Armacost et al. (6,750,113).

Regarding to claims 1-3, Hashimoto et al. disclose a memory cell comprising: a first node (A) for storing a first potential; a second node (B) node for storing a second potential; transistor gates formed a gate layer (8 or 11); a capacitor (C) having plates coupled between the first node and second node (See at least Fig. 4), a portion of one plate (16, 19, 41, 42, 61 or 62) of the capacitor comprising a first interconnect wiring pattern (16 and 19; 41 and 42, or 61 and 62 utilized as wiring lines or L1, L2), that includes a plurality of conductive layers (16, 19; 41, 42, or 61, 62); a first inverter (Qp1, Qd1) having an input coupled to the first node and an output

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coupled to the second node; a second inverter (Qp2, Qd2) having an input coupled to second node and an output coupled to the first node; the first node stores a true data value and the second node stores a complementary data value; a first access transistor (Qt1) coupled to the first node; and a second access transistor (Qt2) coupled to the second node. *See at least Figs. 3-4, 34, 36, 61, for example of Col. 11, lines 24-64, Cols. 20-21, lines 1-67, 1-23, respectively, Cols. 28-29, lines 61-67, 1-67, respectively, and the related disclosure.*

Regarding to claims 5 as understood by Examiner, Hashimoto et al. disclose wherein the first conductive interconnect wiring pattern includes a plurality of separate portions (see at least Fig. 3, 12, 14, 16, 19), each portion including bottom conductive layer (16, 41 or 61), a dielectric layer (18) formed over the bottom conductive layer, and a top conductive layer (19, 42, 62) formed over the dielectric layer, the bottom conductive layer forming at least a portion of the first plate of the capacitor, the bottom conductive layer, dielectric layer, and top conductive layer having same pattern. *See at least Figs. 3-4, 34, 36, 61, for example of Col. 11, lines 24-64, Cols. 20-21, lines 1-67, 1-23, respectively, Cols. 28-29, lines 61-67, 1-67, respectively, and the related disclosure.*

Regarding to claims 21-22, Hashimoto et al. further disclose wherein the gate layer (8 or 11) is not physical contact with a drain of any transistor of the memory cell; the first interconnect wiring pattern includes a first portion of the first conductive wiring comprising a bottom conductive layer (16, 41 or 61) formed below a dielectric layer (18) that isolates the bottom conductive layer from a top conductive layer (19, 42 or 62), the bottom conductive layer

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electrically connecting drains of a first and second transistor of the memory cell. *See at least Fig. 4, for example of Col. 11, lines 24-64, and the related disclosure.*

Hashimoto et al. disclose all the elements as noted above.

Hashimoto et al. fail to specify wherein the plurality of conductive layer commonly etched into the same pattern with substantially aligned edges.

Armacost et al. disclose capacitor comprising plurality of conductive layer commonly etched into the same pattern with substantially aligned edges. *See at least Figs. 1-2, for example of Cols. 1-2, lines 66-67, 1-51, respectively, and the related disclosure.*

It would have been obvious to one having ordinary skill in art at the time of the invention to modify by provide capacitor that comprising plurality of conductive layer commonly etched into the same pattern with substantially aligned edges of Hashimoto as taught by Armacost et al. in order to prevent early wear out and potential breakdown.

4. Claim 23 rejected under 35 U.S.C. 103(a) as being unpatentable over Hashimoto et al. (5,780,910) in view of Nagai (6,104,053).

Hashimoto et al. disclose a memory cell comprising: a first node (A) for storing a first potential; a second node (B) node for storing a second potential; a capacitor (C) having first plate coupled to the first data node, a second plate coupled to the second data node (Fig. 4); a plurality of wiring portion (see at least Fig. 3, 12, 14, 16, 19), each comprising commonly patterned first conductive layer (19 or 42 or 61) and dielectric layer (18), a first wiring portion forming the first

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plate and a second wiring portion forming the second plate (16 or 41 or 62), the dielectric forming the capacitor dielectric. *See at least Figs. 3-4, 34, 36, 61, for example of Col. 11, lines 24-64, Cols. 20-21, lines 1-67, 1-23, respectively, Cols. 28-29, lines 61-67, 1-67, respectively, and the related disclosure.*

Nagai discloses a semiconductor memory device comprising a first plate (electrode 11) of the capacitors; a second plate (electrode 20) of the capacitors; a third plate (electrode 40) separated from the first and second plates by a capacitor dielectric (42). *See at least Fig. 1, 34, for example of Cols. 11, lines 1-47 and the related disclosure.*

Hashimoto et al. fail to specify a third plate separated from the first and second plates by a capacitor dielectric. It would have been obvious to one having ordinary skill in the art at the time of the invention to provide a third plate separated from the first and second plates by a capacitor dielectric of Hashimoto capacitor as taught by Nagai in order to form a constant capacitance, highly reliable capacitors.

#### ***Allowable Subject Matter***

5. Claims 6-7 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: The prior art of record fails to teach all the elements as applied to claim 5 and further comprising the limitation of claim 6.

*Conclusion*

6. The prior made of record cited on Form PTO-892 is considered pertinent to applicant's disclosure.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Lam whose telephone number is 571-272-1782. The examiner can normally be reached on 6:00 – 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amir Zarabian can be reached on 571-272-1852. The fax phone numbers for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

D. Lam

May 20, 2007



**DAVID LAM**  
**PRIMARY EXAMINER**